

Application No. 09/768,912

### REMARKS

Claims 9 and 25 have been amended herein. Upon entry of this amendment, claims 9-12 and 25 will be pending in the above-identified application.

### Section 102

Applicant respectfully requests reconsideration of the rejection of claims 9-11 and 25 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,862,167 (Sassa).

Claims 9-11 recite a semiconductor device comprising a substrate made of a material different from nitride III-V compound semiconductors, wherein the substrate extends between a first surface and a second surface opposite the first surface and has a hole extending through the substrate from the first surface to the second surface, a device formed on one of the first and second surfaces of the single-crystal substrate using III-V compound semiconductors, and a layer disposed on one of the first and second surfaces of the single-crystal substrate, wherein the hole extends to the layer, wherein the device is formed between the layer and the substrate and is electrically connected to the layer, and wherein an electrical connection to the device is created via the hole extending through the substrate and contact with the layer.

Sassa does not disclose or suggest a semiconductor device comprising a substrate extending between a first surface and a second surface opposite the first surface and having a hole extending through the substrate from the first surface to the second surface, a device formed on one of the first and second surfaces of the substrate, and a layer disposed on one of the first and second surfaces of the substrate, wherein the hole extends to the layer, and wherein the device is formed between the layer and the substrate. Rather, Sassa discloses a light-emitting diode or laser diode wherein an Si-doped GaN layer 3 is formed between a device (4, 5, and/or 6) and a substrate 1. On page 5 of the Office Action, the Examiner asserts that "the device of Sassa can additionally be interpreted as including the Si-doped GaN layer 3...and instead the layer that forms the electrical contact layer can instead be interpreted as 41 or 7." However, the hole in the substrate 1 of Sassa does not extend to the electrode layer 7 or the layer 41 of Sassa. Therefore, regardless of whether layer 3, electrode layer 7, or layer 41 is interpreted as the layer electrically connected to the device (3, 4,

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5, and/or 6), Sassa does not disclose the device being formed between the layer and the substrate 1 wherein the hole in the substrate extends to the layer.

Claim 25 recites a semiconductor device comprising a single-crystal substrate made of a material different from nitride III-V compound semiconductors, wherein the substrate extends between a first surface and a second surface opposite the first surface and has a hole extending through the substrate from the first surface to the second surface, a device formed on one of the first and second surfaces of the single-crystal substrate using III-V compound semiconductors, a layer disposed on one of the first and second surfaces of the single-crystal substrate and electrically connected to the device, the layer having a first side facing the substrate and a second side opposite the first side and facing away from the substrate, wherein the hole extends to the layer, wherein a surface of the device facing the substrate is at least as close to the substrate as the second side of the layer facing away from the substrate, and wherein an electrical connection to said device is created via the hole extending through the substrate and contact with said layer.

Sassa does not disclose or suggest a semiconductor device comprising a substrate extending between a first surface and a second surface opposite the first surface and having a hole extending through the substrate from the first surface to the second surface, a device formed on one of the first and second surfaces of the substrate, and a layer disposed on one of the first and second surfaces of the substrate and electrically connected to the device, wherein the layer has a first side facing the substrate and a second side opposite the first side and facing away from the substrate, wherein the hole extends to the layer, and wherein a surface of the device facing the substrate is at least as close to the substrate as the second side of the layer facing away from the substrate, and wherein an electrical connection to said device is created via the hole extending through the substrate and contact with the layer. Rather, Sassa discloses a light-emitting diode or laser diode wherein an Si-doped GaN layer 3 is formed between a device (4, 5, and/or 6) and a substrate 1. Because the layer 3 is formed between the device (4, 5, and/or 6) and the substrate 1, and more specifically the Si-doped  $\text{In}_x\text{Ga}_{1-x}\text{N}$  layer 4 of the device is formed directly on a surface of the layer 3, Sassa does not disclose a surface of the device facing the substrate being at least as

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close to the substrate as a side of the layer facing away from the substrate. Furthermore, as discussed above with regard to claims 9-11, if the electrode layer 7 or layer 41 is interpreted as the layer electrically connected to the device (3, 4, 5, and/or 6), Sassa does not disclose or suggest a hole in the substrate 1 extending to the layer 7 or 41 as recited in claim 25.

In view of the above, the section 102 rejection is improper and should be withdrawn.

### Section 103

Applicant respectfully requests reconsideration of the rejection of claim 12 under 35 U.S.C. 103(a) as being unpatentable over Sassa in view of U.S. Patent No. 5,449,930 (Zhou).

Claim 12 recites a semiconductor device comprising a substrate made of a material different from nitride III-V compound semiconductors, wherein the substrate extends between a first surface and a second surface opposite the first surface and has a hole extending through the substrate from the first surface to the second surface, a device formed on one of the first and second surfaces of the single-crystal substrate using III-V compound semiconductors, and a layer disposed on one of the first and second surfaces of the single-crystal substrate, wherein the hole extends to the layer, and wherein the device is formed between the layer and the substrate and is electrically connected to the layer, and wherein an electrical connection to the device is created via the hole extending through the substrate and contact with the layer. Claim 12 additionally recites the semiconductor device is an FET using nitride III-V compound semiconductors.

As discussed above, Sassa does not disclose or suggest a semiconductor device comprising a substrate extending between a first surface and a second surface opposite the first surface and having a hole extending through the substrate from the first surface to the second surface, a device formed on one of the first and second surfaces of the substrate, and a layer disposed on one of the first and second surfaces of the substrate, wherein the hole extends to the layer, and wherein the device is formed between the layer and the substrate. Furthermore, Zhou fails to disclose or suggest these recited

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features. Thus, even if one were to combine the references, the combination would not disclose or suggest a semiconductor device comprising a substrate extending between a first surface and a second surface opposite the first surface and having a hole extending through the substrate from the first surface to the second surface, a device formed on one of the first and second surfaces of the substrate, and a layer disposed on one of the first and second surfaces of the substrate, wherein the hole extends to the layer, and wherein the device is formed between the layer and the substrate. Accordingly, the section 103 rejection is improper and should be withdrawn.

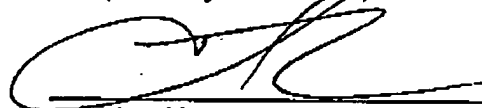
### **CONCLUSION**

If the Examiner believes that there is any issue which could be resolved by an interview, please contact the undersigned attorney at the telephone number listed below.

As the application is believed to be in condition for allowance, a favorable action and Notice of Allowance are respectfully requested.

Dated: September 2, 2004

Respectfully submitted,



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